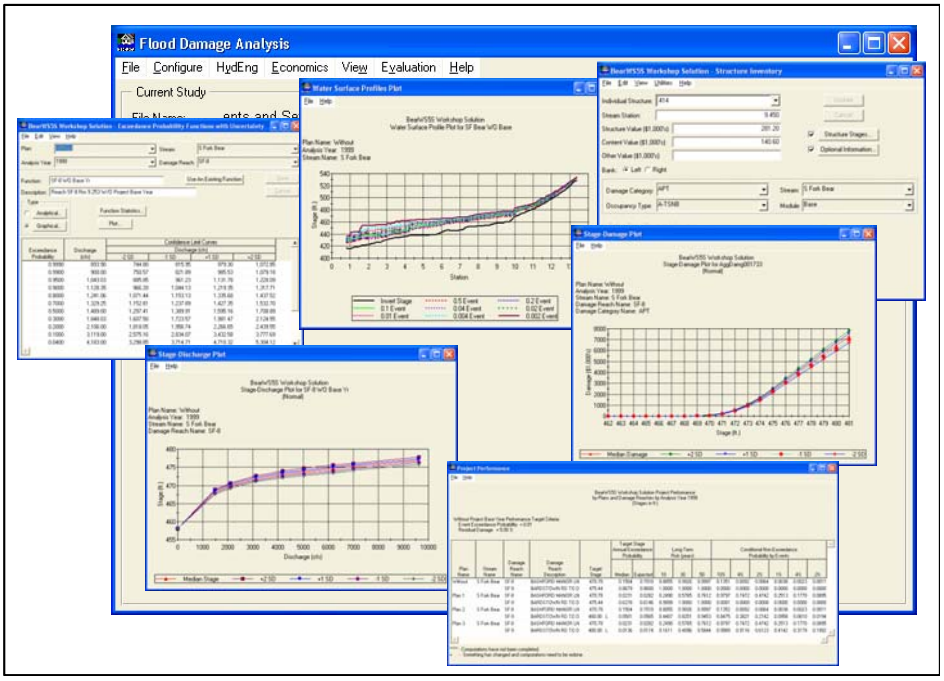
US Army Corps of Engineers®

Flood&Coastal Storm Damage Reduction R&D Program

HEC-FDA

Description

The Hydrologic Engineering Center's Flood Damage Analysis (HEC-FDA) computer program is designed to assist U.S. Army Corps of Engineers study team members in using risk analysis methods for flood damage reduction studies as required by the Corps (EM 1110-2-1419 and EM 1110-2-1619). The approach explicitly incorporates descriptions of uncertainty of key parameters and functions into project benefit and performance analyses.



Benefits

HEC-FDA is designed to assist study team members during the feasibility study phase of a flood damage reduction study where the objective is to investigate and recommend solutions to water resources problems. The effort during the early stage of the feasibility study consists of the evaluation of the without-project condition and the determination of the required level of detail and the scope of field investigations. This is followed by the nomination and evaluation of flood damage reduction plans. Sufficient engineering and design are performed to enable refinement of the project features, prepare the baseline cost estimate, develop a design and construction schedule, and allow detailed design on the selected plan to begin at the start of the next phase.

The feasibility study must demonstrate that the proposed project contributes to national economic development (NED). That is, the project benefits must exceed the costs. Benefits from plans for reducing flood hazards accrue primarily through the reduction in actual or potential damage associated with land use. These benefits may be classified as

inundation-reduction benefits, intensification benefits, or location benefits, depending on the response to flood damage reduction.

Status

HEC-FDA 1.2 was released in 2001, and a new completely revised Version 1.4 of the program is planned for FY 08. The most significant change in the new version is the method for calculating uncertainty about the graphical (nonanalytical) probability function. It will affect the calculation of expected annual damage and project performance including the determination of certified levee heights. Other changes include additional output to a HEC-Data Storage System (DSS) data file that allows the user to compare functions between plans (both input and output) and view replicates from the Monte-Carlo simulations. There are numerous changes that correct errors and make the calculations more accurate.

HEC-FDA 2.0 is also under development. The HEC-FDA Version 2.0 package will be a significant advancement over the earlier versions of HEC-FDA. HEC-FDA 2.0 will use the same computational engine as Version 1.4, but it will have a new graphical user interface, that allows the user to more readily view and organize their study data. The new interface will contain geographic information system (GIS) components that will greatly enhance the applicability of HEC-FDA for flood damage reduction studies. It will also contain features for evaluating and comparing nonstructural measures within a flood damage reduction study.

Distribution Source(s)

HEC-FDA 1.2 can be obtained from the HEC Web site at the following location: www.hec.usace.army.mil

Available Documentation

Documentation for HEC-FDA currently consists of a User's Manual (Version 1.2), which can be downloaded from the HEC Web site.

Available Training

Training for HEC-FDA is available as part of the "Risk Analysis for Flood Damage Reduction Studies" class offered at HEC. To find out more about this class, and when it is offered, visit the HEC Web site. In addition, training is provided at field locations when requested and funded by Corps' Districts and Divisions.

Available Support

Support for HEC-FDA is available to all Corps employees. Corps users can either e-mail or call HEC with questions and/or comments.

Application

HEC-FDA is the primary tool used by Corps Districts to perform plan analysis for flood damage reduction studies and is being used Corps-wide as the main tool for levee certification studies. HEC-FDA is currently being used by the USACE, Savannah District, to develop the economic justification for a flood damage reduction project on the Augusta Canal.

Point of Contact

Bob Carl (robert.d.carl@usace.army.mil) or Jason Needham (jason.t.needham@usace.army.mil), Hydrologic Engineering Center, 609 Second Street, Davis, CA. 95616, (530) 756-1104.

Partners

N/A.